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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,132	12/20/2000	Akira Osamato	TI-29873	6611
23494	7590	06/29/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			HERNANDEZ, NELSON D	
			ART UNIT	PAPER NUMBER
			2622	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/745,132	<b>Applicant(s)</b> OSAMATO, AKIRA	
	<b>Examiner</b> Nelson D. Hernandez	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 2 is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. It is noted that the present application claims benefit of the following provisional applications:

60/172,780 filed 12/20/2000;

60/176,272 filed 1/14/2000;

60/177,432 filed 1/21/2000;

60/214,951 filed 6/29/2000; and

60/215,000 filed 6/29/2000.

The Examiner notes that none of the inventors listed in the provisional applications are listed in the present application. See MPEP 1483 [R-3] II B (4).

"A nonprovisional application, other than for a design patent, or an international application designating the United States of America may claim an invention disclosed in one or more prior-filed provisional applications. In order for an application to claim the benefit of one or more prior-filed provisional applications, each prior-filed provisional application must name as an inventor at least one inventor named in the later-filed application and disclose the named inventor's invention claimed in at least one claim of the later-filed application in the manner provided by the first paragraph of 35 U.S.C.

112. In addition, each prior-filed provisional application must be entitled to a filing date as set forth in §1.53(c), and the basic filing fee set forth in §1.16(d) must be paid within the time period set forth in §1.53(g)."

***Response to Amendment***

1. The Examiner acknowledges the amended claims filed on April 12, 2006. Claim 3 has been amended. Claim 4 has been newly added.

***Response to Arguments***

2. Applicant's arguments with respect to claim 3 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada, US Patent 6,133,953 in view of Takizawa, US Patent 6,388,706 B1.**

**Regarding claim 3**, Okada discloses an interpolator for complementary color-filtered array image, comprising: a subarray-to-array interpolator (Fig. 1: 34) for the color subarrays of a complementary-color-filtered array (See fig. 2A) (Col. 5, line 65 – col. 6, line 20; col. 6, lines 36-65; col. 7, line 50 – col. 8, line 14).

Okada does not explicitly disclose a filter coupled to the output of the interpolator to adjust the interpolated color at each pixel by adjusting with an imbalance factor for the pixel.

However, adjusting interpolated colors at each pixel by adjusting with an imbalance factor for the pixels using a filter coupled to the output of the interpolator is well known in the art as taught by Takizawa. Takizawa teaches an interpolator for the color subarrays of a complementary color filtered array changed into RGB colors (See fig. 7a; col. 8, line 44 – col. 9, line 20), a filter coupled to the output of the interpolator (referred to as performing white balance and gain adjustments) to adjust the interpolated colors at each pixel by adjusting with an imbalance factor (coefficients  $A_r$ ,  $A_g$  and  $A_b$ ) for the pixel (col. 13, line 53 – col. 14, line 23). Having a filter coupled to the output of the interpolator to adjust the interpolated color at each pixel by adjusting with an imbalance factor for the pixel is advantageous because it would correct the decrease in marginal brightness of the image.

Therefore, taking the combined teaching of Okada in view of Takizawa as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Okada by adjusting the interpolated colors at each pixel by adjusting with an imbalance factor for the pixel. The motivation to do so would have been to correct the decrease in marginal brightness as suggested by Takizawa (See col. 13, line 64 – col. 14, line 4).

**Regarding claim 4**, the combined teaching of Okada in view of Takizawa teaches that the subarray-to-array interpolator and said filter are implemented as a program on a programmable processor (Takizawa discloses the interpolation process being performed as a program on a programmable processor (a computer); see col. 13, lines 5-24).

***Allowable Subject Matter***

**5. Claims 1 and 2 are allowed.**

6. The following is a statement of reasons for the indication of allowable subject matter:

**Regarding claim 1**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest, including all the elements of the present claim:

(i) subtracting a quantity  $(Y_e + C_y - 2 \cdot G - M_g)/4$  from  $Y_e$  to generate the pixel's adjusted yellow value where  $Y_e$  is the pixel's yellow value from step (b),  $C_y$  is the pixel's cyan value from step (c),  $M_g$  is the pixel's magenta value from step (d), and  $G$  is the pixel's green value from step (e);

(ii) subtracting the quantity  $(Y_e + C_y - 2 \cdot G - M_g)/4$  from  $C_y$  to generate the pixel's adjusted cyan value;

(iii) adding the quantity  $(Y_e + C_y - 2 \cdot G - M_g)/4$  to  $M_g$  to generate the pixel's adjusted magenta value; and

(iv) adding the quantity  $(Y_e + C_y - 2 \cdot G - M_g)/8$  to  $G$  to generate the pixel's adjusted green value.

**Regarding claim 2**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest, including all the elements of the present claim:

(i) subtracting a quantity  $(Y_e + C_y - 2 \cdot G - M_g)/4$  from  $Y_e$  to generate the pixel's adjusted yellow value;

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(ii) subtracting the quantity  $(Y_e + C_y - 2 \cdot G - M_g)/4$  from  $C_y$  to generate the pixel's adjusted cyan value;

(iii) adding the quantity  $(Y_e + C_y - 2 \cdot M_g)/4$  to  $M_g$  to generate the pixel's adjusted magenta value; and

(iv) adding the quantity  $(Y_e + C_y - 2 \cdot G - M_g)/8$  to  $G$  to generate the pixel's adjusted green value.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

**Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernandez  
Examiner  
Art Unit 2622

NDHH  
June 20, 2006



LIN YE  
PRIMARY EXAMINER